

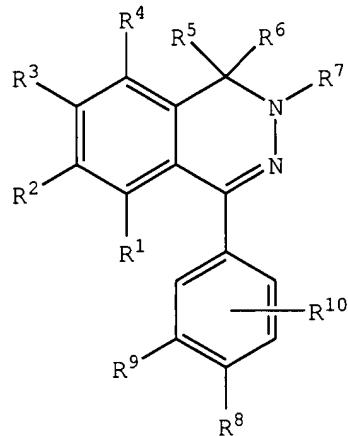
Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 3

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-9 (canceled).

Claim 10 (currently amended): A method for treating a patient having a disorder associated with excessive activation of the  $\alpha$ -amino-3-hydroxy-5-methyl-4-isooxazolepropionic acid (AMPA) subtype of the ionotropic excitatory amino acid (EAA) receptors, the method comprising administering to the patient, in an effective amount to alleviate the symptoms of the disorder, a compound of Formula I:



wherein

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are independently

H,

HO,

R<sup>11</sup>O-,

halogen,

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 4

C1-C3-alkyl,  
 $\text{CF}_3$ ,  
 $\text{R}^{12}\text{CO}_2-$ ,  
 $\text{R}^{12}\text{O}_2\text{C}-$ ,  
 $\text{R}^{12}\text{CO}-$ ,  
 $\text{R}^{12}\text{CONH}-$ ,  
 $\text{R}^{12}\text{NHCO}-$ ,  
 $\text{R}^{12}\text{NHCO}_2-$ ,  
 $\text{R}^{12}\text{OCONH}-$ ,  
 $\text{R}^{12}\text{O}_2\text{S}-$ ,  
 $\text{R}^{12}\text{OS}-$ , or  
 $\text{R}^{13}\text{R}^{14}\text{N}-$ ; or

$\text{R}^1$  and  $\text{R}^2$ , or  $\text{R}^2$  and  $\text{R}^3$ , or  $\text{R}^3$  and  $\text{R}^4$  taken together can be

$-\text{SCH}_2\text{S}-$ ,  
 $-\text{SCH}_2\text{O}-$ ,  
 $-\text{OCH}_2\text{S}-$ ,  
 $-\text{SCH}_2\text{CH}_2\text{S}-$ ,  
 $-\text{SCH}_2\text{CH}_2\text{O}-$ , or  
 $-\text{OCH}_2\text{CH}_2\text{S}-$ ;

wherein at least one of  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$  or  $\text{R}^4$  must be a C1-C3-alkylthio group,

$\text{R}^5$  and  $\text{R}^6$  are independently

H,  
C1-C6-alkyl,  
C3-C6-alkenyl,  
C3-C6-cycloalkyl, or  
phenyl or substituted phenyl, wherein the phenyl is substituted with one or two substituents selected from the group consisting of C1-C3-alkyl, halogen,  $\text{R}^{11}\text{O}-$ ,  $\text{CF}_3$ ,

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 5

$R^{12}O_2S-$ ,  $R^{12}OS-$ ,  $R^{12}CO$ ,  $R^{12}CO_2-$ ,  $R^{12}O_2C-$ ,  $R^{12}CONH-$ ,  $R^{12}NHCO-$ ,  
 $R^{12}NHCO_2-$ ,  $R^{12}OCONH-$ , and  $R^{13}R^{14}N-$ ; or

$R^5$  and  $R^6$  taken together can be C3-C6-cycloalkyl;  
 $R^7$  is

$R^{13}R^{14}NCO-$ ,  
 $R^{13}R^{14}NCS-$ ,  
 $R^{13}R^{14}N(HCR^{15})-$ ,  
 $R^{15}OCO-$ ,  
 $R^{13}CO-$ ,  
 $R^{13}R^{14}NCH_2CO-$ ,  
 $R^{12}O_2C-(CH_2)_n-$ ,  
 $R^{13}R^{14}NCO-(CH_2)_n-$ ,  
 $NC-(CH_2)_n-$ ,  
H,  
C1-C6-alkyl,  
C3-C6-alkenyl, or  
C3-C6-cycloalkyl; or

$R^6$  and  $R^7$  taken together can be

-  $(CH_2)_mCH_2(R^{13})NCO-$ ,  
-  $(CH_2)_mCH_2OCO-$ , or  
-  $(CH_2)_mCH_2CH_2CO-$ ;

$R^8$  and  $R^9$  are independently

H,  
 $R^{13}R^{14}N-$ ,  
 $R^{13}R^{14}N(HCR^{15})-$ ,  
 $R^{12}HNCO-$ , or  
 $R^{12}CONH-$ ;

$R^{10}$  is

H,

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 6

halogen,  
HO,  
 $R^{11}O^-$ ,  
 $R^{13}R^{14}N^-$ ,  
C1-C3-alkyl,  
 $CF_3$ ,  
 $R^{12}CO_2^-$ ,  
 $R^{12}CO^-$ , or  
 $R^{12}CONH^-$ ;  
 $R^{11}$  is C1-C3-alkyl;  
 $R^{12}$  is H or C1-C3-alkyl;  
 $R^{13}$  and  $R^{14}$  are independently  
H,  
C1-C10-alkyl,  
C1-C6-perfluoroalkyl,  
C3-C10-alkenyl, or  
C3-C6-cycloalkyl; or  
 $R^{13}$  and  $R^{14}$  taken together can be C3-C6-cycloalkyl;  
 $R^{15}$  is C1-C6-alkyl, C3-C6-alkenyl, or C3-C6-cycloalkyl;  
n is 1 to 6;  
m is 0 to 2;  
or pharmaceutically acceptable salts thereof;  
wherein  $R^8$  and  $R^9$  cannot both be H,  
in combination with a pharmaceutically acceptable carrier.

Claim 11 (previously presented): The method of claim 10  
wherein, in the compound of Formula I, one of four substituents  
of  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  must be C1-C3-alkylthio group, the other

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 7

substituents are independently H, R<sup>11</sup>O-, R<sup>11</sup>S-, halogen, or C1-C3-alkyl;

R<sup>2</sup> and R<sup>3</sup> taken together can be -SCH<sub>2</sub>S-, SCH<sub>2</sub>O-, or -OCH<sub>2</sub>S-;  
R<sup>7</sup> is

R<sup>13</sup>R<sup>14</sup>NCO-,  
R<sup>13</sup>R<sup>14</sup>NCS-,  
R<sup>13</sup>R<sup>14</sup>N(HCR<sup>15</sup>)-,  
R<sup>15</sup>OCO-,  
R<sup>13</sup>CO-, or  
H;

R<sup>8</sup> and R<sup>9</sup> are independently H, H<sub>2</sub>N- or CH<sub>3</sub>CONH-; or pharmaceutically acceptable salts thereof.

Claim 12 (original): The method of claim 11 wherein the compound of Formula I is selected from the group consisting of 4-(4-Aminophenyl)-1,2-dihydro-1-methyl-2-ethylcarbamoyl-6-methylthiophthalazine, 4-(4-Aminophenyl)-1,2-dihydro-1-methyl-2-n-propylcarbamoyl-6-methylthiophthalazine, 4-(4-Aminophenyl)-1,2-dihydro-1-methyl-2-n-butylcarbamoyl-6-methylthiophthalazine, 4-(4-Aminophenyl)-1,2-dihydro-2-ethylcarbamoyl-6-methylthiophthalazine, 4-(4-Aminophenyl)-1,2-dihydro-2-n-propylcarbamoyl-6-methylthiophthalazine, and 4-(4-Aminophenyl)-1,2-dihydro-2-n-butylcarbamoyl-6-methylthiophthalazine.

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 8

Claim 13 (original): The method of claim 10 wherein the disorder is selected from the group consisting of neurological, neuropsychological, neuropsychiatric, neurodegenerative, neuropsychopharmacological and functional disorders.

Claim 14 (original): The method of claim 11 wherein the disorder is selected from the group consisting of neurological, neuropsychological, neuropsychiatric, neurodegenerative, neuropsychopharmacological and functional disorders.

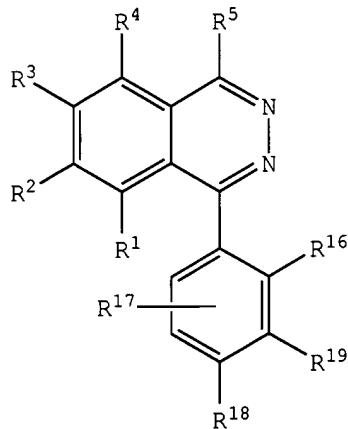
Claim 15 (original): The method of claim 12 wherein the disorder is selected from the group consisting of neurological, neuropsychological, neuropsychiatric, neurodegenerative, neuropsychopharmacological and functional disorders.

Claims 16-24 (canceled).

Claim 25 (previously presented): A method for treating a patient having a disorder associated with excessive activation of the  $\alpha$ -amino-3-hydroxy-5-methyl-4-isooxazolepropionic acid (AMPA) subtype of the ionotropic excitatory amino acid (EAA) receptors, the method comprising administering to the patient, in an effective amount to alleviate the symptoms of the disorder, a compound of Formula II:

Attorney Docket No.:  
Inventor:  
Serial No.:  
Filing Date:  
Page 9

**SYM 112 CON (TI-0035)**  
**Pei et al.**  
**10/667,069**  
**September 18, 2003**



wherein

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are independently

H,

HO,

R<sup>11</sup>O-,

halogen,

C1-C3-alkyl,

CF<sub>3</sub>,

R<sup>12</sup>CO<sub>2</sub>-,

R<sup>12</sup>O<sub>2</sub>C-,

R<sup>12</sup>CO-,

R<sup>12</sup>CONH-,

R<sup>12</sup>NHCO-,

R<sup>12</sup>NHCO<sub>2</sub>-,

R<sup>12</sup>OCONH-,

R<sup>12</sup>O<sub>2</sub>S-,

R<sup>12</sup>OS-, or

R<sup>13</sup>R<sup>14</sup>N-; or

R<sup>1</sup> and R<sup>2</sup>, or R<sup>2</sup> and R<sup>3</sup>, or R<sup>3</sup> and R<sup>4</sup> taken together can be

-SCH<sub>2</sub>S-,

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 10

-SCH<sub>2</sub>O-,  
-OCH<sub>2</sub>S-,  
-SCH<sub>2</sub>CH<sub>2</sub>S-,  
-SCH<sub>2</sub>CH<sub>2</sub>O-, or  
-OCH<sub>2</sub>CH<sub>2</sub>S-;

wherein at least one of R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> or R<sup>4</sup> must be a C1-C3-alkylthio group;

R<sup>5</sup> is

H,  
C1-C6-alkyl,  
C3-C6-alkenyl,  
C3-C6-cycloalkyl,

phenyl or substituted phenyl, wherein the phenyl is substituted with one or two substituents selected from the group consisting of C1-C3-alkyl, halogen, R<sup>11</sup>O-, CF<sub>3</sub>-, R<sup>12</sup>O<sub>2</sub>S-, R<sup>12</sup>OS-, R<sup>12</sup>CO, R<sup>12</sup>CO<sub>2</sub>-, R<sup>12</sup>O<sub>2</sub>C-, R<sup>12</sup>CONH-, R<sup>12</sup>NHCO-, R<sup>12</sup>NHO<sub>2</sub>-, R<sup>12</sup>OCONH-, or R<sup>13</sup>R<sup>14</sup>N-;

R<sup>11</sup> is C1-C3-alkyl;

R<sup>12</sup> is H or C1-C3-alkyl;

R<sup>13</sup> and R<sup>14</sup> are independently

H,  
C1-C10-alkyl,  
C1-C6-perfluoroalkyl,  
C3-C10-alkenyl, or  
C3-C6-cycloalkyl; or

R<sup>13</sup> and R<sup>14</sup> taken together can be C3-C6-cycloalkyl;

R<sup>15</sup> is C1-C6-alkyl, C3-C6-alkenyl, or C3-C6-cycloalkyl;

R<sup>16</sup> and R<sup>17</sup> are independently

H,

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 11

halogen,  
C1-C3-alkyl,  
 $R^{12}O^-$ ,  
 $CF_3^-$ , or  
 $R^{12}CO_2^-$ ;  
 $R^{18}$  and  $R^{19}$  are independently  
H,  
 $R^{13}R^{14}N^-$ ,  
 $R^{13}HNC(NH)^-$ , or  
 $R^{12}CONH^-$ ;  
or pharmaceutically acceptable salts thereof;  
wherein  $R^{18}$  and  $R^{19}$  cannot both be H,  
in combination with a pharmaceutically acceptable carrier.

Claim 26 (previously presented): The method of claim 25 wherein, in the compound of Formula II, one of four substituents of  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  must be a C1-C3-alkylthio group, the other substituents are independently H,  $R^{11}O^-$ ,  $R^{11}S^-$ , halogen, or C1-C3-alkyl;

$R^2$  and  $R^3$  taken together can be  $-SCH_2S^-$ ,  $-SCH_2O^-$ , or  $-OCH_2S^-$ ;  
 $R^{18}$  and  $R^{19}$  are independently H,  $H_2N^-$ , or  $CH_3CONH^-$ ; or pharmaceutically acceptable salts thereof.

Claim 27 (original): The method of claim 26 wherein the compound of Formula II is selected from the group consisting of 1-(4-Aminophenyl)-6-methylthiophthalazine, 1-(4-Acetylaminophenyl)-6-methylthiophthalazine, 1-(4-Aminophenyl)-7-methylthiophthalazine, 1-(4-Aminophenyl)-4-methyl-6-methylthiophthalazine, 1-(4-Acetylaminophenyl)-4-methyl-6-methylthiophthalazine, 1-(4-Aminophenyl)-4-methyl-7-

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 12

methylthiophthalazine, 1-(4-Acetylaminophenyl)-4-methyl-7-methylthiophthalazine.

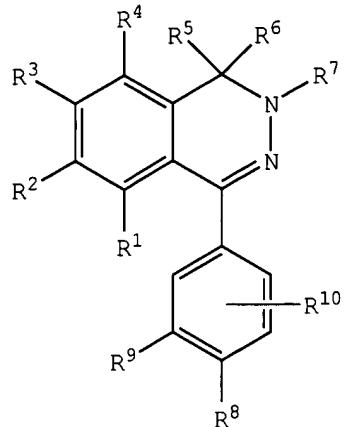
Claim 28 (original): The method of claim 25 wherein the disorder is selected from the group consisting of neurological, neuropsychological, neuropsychiatric, neurodegenerative, neuropsychopharmacological and functional disorders.

Claim 29 (original): The method of claim 26 wherein the disorder is selected from the group consisting of neurological, neuropsychological, neuropsychiatric, neurodegenerative, neuropsychopharmacological and functional disorders.

Claim 30 (original): The method of claim 27 wherein the disorder is selected from the group consisting of neurological, neuropsychological, neuropsychiatric, neurodegenerative, neuropsychopharmacological and functional disorders.

Claim 31 (currently amended): A method for decreasing the excessive flux of ions through an  $\alpha$ -amino-3-hydroxy-5-methyl-4-isooxazolepropionic acid (AMPA) subtype of the ionotropic excitatory amino acid (EAA) receptors, the method comprising contacting a cortical cell with an effective amount of a compound of Formula I:

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 13



wherein

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are independently

H,

HO,

R<sup>11</sup>O-,

halogen,

C1-C3-alkyl,

CF<sub>3</sub>,

R<sup>12</sup>CO<sub>2</sub>-,

R<sup>12</sup>O<sub>2</sub>C-,

R<sup>12</sup>CO-,

R<sup>12</sup>CONH-,

R<sup>12</sup>NHCO-,

R<sup>12</sup>NHCO<sub>2</sub>-,

R<sup>12</sup>OCONH-,

R<sup>12</sup>O<sub>2</sub>S-,

R<sup>12</sup>OS-, or

R<sup>13</sup>R<sup>14</sup>N-; or

R<sup>1</sup> and R<sup>2</sup>, or R<sup>2</sup> and R<sup>3</sup>, or R<sup>3</sup> and R<sup>4</sup> taken together can be

-SCH<sub>2</sub>S-,

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 14

-SCH<sub>2</sub>O-,  
-OCH<sub>2</sub>S-,  
-SCH<sub>2</sub>CH<sub>2</sub>S-,  
-SCH<sub>2</sub>CH<sub>2</sub>O-, or  
-OCH<sub>2</sub>CH<sub>2</sub>S-;

wherein at least one of R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> or R<sup>4</sup> must be a C1-C3-alkylthio group,

R<sup>5</sup> and R<sup>6</sup> are independently

H,  
C1-C6-alkyl,  
C3-C6-alkenyl,  
C3-C6-cycloalkyl, or

phenyl or substituted phenyl, wherein the phenyl is substituted with one or two substituents selected from the group consisting of C1-C3-alkyl, halogen, R<sup>11</sup>O-, CF<sub>3</sub>, R<sup>12</sup>O<sub>2</sub>S-, R<sup>12</sup>OS-, R<sup>12</sup>CO, R<sup>12</sup>CO<sub>2</sub>-, R<sup>12</sup>O<sub>2</sub>C-, R<sup>12</sup>CONH-, R<sup>12</sup>NHCO-, R<sup>12</sup>NHCO<sub>2</sub>-, R<sup>12</sup>OCONH-, and R<sup>13</sup>R<sup>14</sup>N-; or

R<sup>5</sup> and R<sup>6</sup> taken together can be C3-C6-cycloalkyl;

R<sup>7</sup> is

R<sup>13</sup>R<sup>14</sup>NCO-  
R<sup>13</sup>R<sup>14</sup>NCS-  
R<sup>13</sup>R<sup>14</sup>N(HCR<sup>15</sup>)  
R<sup>15</sup>OCO-  
R<sup>13</sup>CO-  
R<sup>13</sup>R<sup>14</sup>NCH<sub>2</sub>CO-  
R<sup>12</sup>O<sub>2</sub>C-(CH<sub>2</sub>)<sub>n</sub>-  
R<sup>13</sup>R<sup>14</sup>NCO-(CH<sub>2</sub>)<sub>n</sub>-  
NC-(CH<sub>2</sub>)<sub>n</sub>-  
H,

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 15

C1-C6-alkyl,  
C3-C6-alkenyl, or  
C3-C6-cycloalkyl; or

R<sup>6</sup> and R<sup>7</sup> taken together can be  
- (CH<sub>2</sub>)<sub>m</sub>CH<sub>2</sub>(R<sup>13</sup>)NCO-,  
- (CH<sub>2</sub>)<sub>m</sub>CH<sub>2</sub>OCO-, or  
- (CH<sub>2</sub>)<sub>m</sub>CH<sub>2</sub>CH<sub>2</sub>CO-;

R<sup>8</sup> and R<sup>9</sup> are independently

H,  
R<sup>13</sup>R<sup>14</sup>N-,  
R<sup>13</sup>R<sup>14</sup>N(HCR<sup>15</sup>)-,  
R<sup>12</sup>HNCO-, or  
R<sup>12</sup>CONH-;

R<sup>10</sup> is

H,  
halogen,  
HO,  
R<sup>11</sup>O-,  
R<sup>13</sup>R<sup>14</sup>N-,  
C1-C3-alkyl,  
CF<sub>3</sub>,  
R<sup>12</sup>CO<sub>2</sub>-,  
R<sup>12</sup>CO-, or  
R<sup>12</sup>CONH-;

R<sup>11</sup> is C1-C3-alkyl;

R<sup>12</sup> is H or C1-C3-alkyl;

R<sup>13</sup> and R<sup>14</sup> are independently

H,  
C1-C10-alkyl,

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 16

C1-C6-perfluoroalkyl,  
C3-C10-alkenyl, or  
C3-C6-cycloalkyl; or  
 $R^{13}$  and  $R^{14}$  taken together can be C3-C6-cycloalkyl;  
 $R^{15}$  is C1-C6-alkyl, C3-C6-alkenyl, or C3-C6-cycloalkyl;  
n is 1 to 6;  
m is 0 to 2;  
or pharmaceutically acceptable salts thereof;  
wherein  $R^8$  and  $R^9$  cannot both be H,  
in combination with a pharmaceutically acceptable carrier  
so that the excessive flux of ions through the AMPA receptor  
is decreased.

Claim 32 (previously presented): The method of claim 31  
wherein, in the compound of Formula I, one of four substituents  
of  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  must be C1-C3-alkylthio group, the other  
substituents are independently H,  $R^{11}O^-$ ,  $R^{11}S^-$ , halogen or C1-C3-  
alkyl;

$R^2$  and  $R^3$  taken together can be  $-SCH_2S-$ ,  $SCH_2O^-$ , or  $-OCH_2S^-$ ;  
 $R^7$  is

$R^{13}R^{14}NCO^-$ ,  
 $R^{13}R^{14}NCS^-$ ,  
 $R^{13}R^{14}N(HCR^{15})^-$ ,  
 $R^{15}OCO^-$ ,  
 $R^{13}CO^-$ , or  
H;

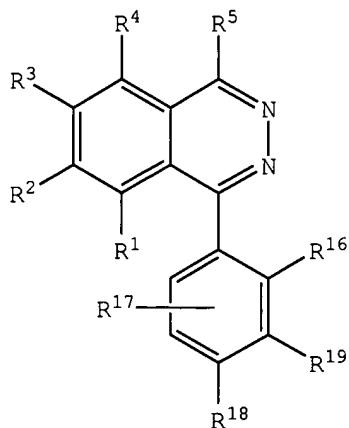
$R^8$  and  $R^9$  are independently H,  $H_2N^-$  or  $CH_3CONH^-$ ; or  
pharmaceutically acceptable salts thereof.

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 17

Claim 33 (previously presented): The method of claim 32 wherein the compound of Formula I is selected from the group consisting of

4-(4-Aminophenyl)-1,2-dihydro-1-methyl-2-ethylcarbamoyl-6-methylthiophthalazine, 4-(4-Aminophenyl)-1,2-dihydro-1-methyl-2-n-propylcarbamoyl-6-methylthiophthalazine, 4-(4-Aminophenyl)-1,2-dihydro-1-methyl-2-n-butylicarbamoyl-6-methylthiophthalazine, 4-(4-Aminophenyl)-1,2-dihydro-2-ethylcarbamoyl-6-methylthiophthalazine, 4-(4-Aminophenyl)-1,2-dihydro-2-n-propylcarbamoyl-6-methylthiophthalazine, and 4-(4-Aminophenyl)-1,2-dihydro-2-n-butylicarbamoyl-6-methylthiophthalazine.

Claim 34 (previously presented): A method for decreasing the excessive flux of ions through an  $\alpha$ -amino-3-hydroxy-5-methyl-4-isooxazolepropionic acid (AMPA) subtype of the ionotropic excitatory amino acid (EAA) receptors, the method comprising contacting a cortical cell with an effective amount of a compound of Formula II:



wherein

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are independently

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 18

H,  
HO,  
 $R^{11}O^-$ ,  
halogen,  
C1-C3-alkyl,  
 $CF_3$ ,  
 $R^{12}CO_2^-$ ,  
 $R^{12}O_2C^-$ ,  
 $R^{12}CO^-$ ,  
 $R^{12}CONH^-$ ,  
 $R^{12}NHCO^-$ ,  
 $R^{12}NHCO_2^-$ ,  
 $R^{12}OCONH^-$ ,  
 $R^{12}O_2S^-$ ,  
 $R^{12}OS^-$ , or  
 $R^{13}R^{14}N^-$ ; or

$R^1$  and  $R^2$ , or  $R^2$  and  $R^3$ , or  $R^3$  and  $R^4$  taken together can be  
- $SCH_2S^-$ ,  
- $SCH_2O^-$ ,  
- $OCH_2S^-$ ,  
- $SCH_2CH_2S^-$ ,  
- $SCH_2CH_2O^-$ , or  
- $OCH_2CH_2S^-$ ;

wherein at least one of  $R^1$ ,  $R^2$ ,  $R^3$  or  $R^4$  must be a C1-C3-alkylthio group;

$R^5$  is

H,  
C1-C6-alkyl,  
C3-C6-alkenyl,

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 19

C3-C6-cycloalkyl,  
phenyl or substituted phenyl, wherein the phenyl is  
substituted with one or two substituents selected from the group  
consisting of C1-C3-alkyl, halogen, R<sup>11</sup>O-, CF<sub>3</sub>-, R<sup>12</sup>O<sub>2</sub>S-, R<sup>12</sup>OS-,  
R<sup>12</sup>CO, R<sup>12</sup>CO<sub>2</sub>-, R<sup>12</sup>O<sub>2</sub>C-, R<sup>12</sup>CONH-, R<sup>12</sup>NHCO-, R<sup>12</sup>NHCO<sub>2</sub>-, R<sup>12</sup>OCONH-, or  
R<sup>13</sup>R<sup>14</sup>N-;

R<sup>11</sup> is C1-C3-alkyl;

R<sup>12</sup> is H or C1-C3-alkyl;

R<sup>13</sup> and R<sup>14</sup> are independently

H,

C1-C10-alkyl,

C1-C6-perfluoroalkyl,

C3-C10-alkenyl, or

C3-C6-cycloalkyl; or

R<sup>13</sup> and R<sup>14</sup> taken together can be C3-C6-cycloalkyl;

R<sup>15</sup> is C1-C6-alkyl, C3-C6-alkenyl, or C3-C6-cycloalkyl;

R<sup>16</sup> and R<sup>17</sup> are independently

H,

halogen,

C1-C3-alkyl,

R<sup>12</sup>O-,

CF<sub>3</sub>-, or

R<sup>12</sup>CO<sub>2</sub>-;

R<sup>18</sup> and R<sup>19</sup> are independently

H,

R<sup>13</sup>R<sup>14</sup>N-,

R<sup>13</sup>HNC(NH)-, or

R<sup>12</sup>CONH-;

or pharmaceutically acceptable salts thereof;

Attorney Docket No.: **SYM 112 CON (TI-0035)**  
Inventor: **Pei et al.**  
Serial No.: **10/667,069**  
Filing Date: **September 18, 2003**  
Page 20

wherein R<sup>18</sup> and R<sup>19</sup> cannot both be H,  
in combination with a pharmaceutically acceptable carrier  
so that the excessive flux of ions through the AMPA receptor  
is decreased.

Claim 35 (previously presented): The method of claim 34  
wherein, in the compound of Formula II, one of four substituents  
of R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> must be a C1-C3-alkylthio group, the other  
substituents are independently H, R<sup>11</sup>O-, R<sup>11</sup>S-, halogen, or C1-C3-  
alkyl;

R<sup>2</sup> and R<sup>3</sup> taken together can be -SCH<sub>2</sub>S-, -SCH<sub>2</sub>O-, or -OCH<sub>2</sub>S-;  
R<sup>18</sup> and R<sup>19</sup> are independently H, H<sub>2</sub>N-, or CH<sub>3</sub>CONH-; or  
pharmaceutically acceptable salts thereof.

Claim 36 (previously presented): The method of claim 35  
wherein the compound of Formula II is selected from the group  
consisting of

1-(4-Aminophenyl)-6-methylthiophthalazine, 1-(4-Acetylaminophenyl)-6-methylthiophthalazine, 1-(4-Aminophenyl)-7-methylthiophthalazine, 1-(4-Aminophenyl)-4-methyl-6-methylthiophthalazine, 1-(4-Acetylaminophenyl)-4-methyl-6-methylthiophthalazine, 1-(4-Aminophenyl)-4-methyl-7-methylthiophthalazine, 1-(4-Acetylaminophenyl)-4-methyl-7-methylthiophthalazine.